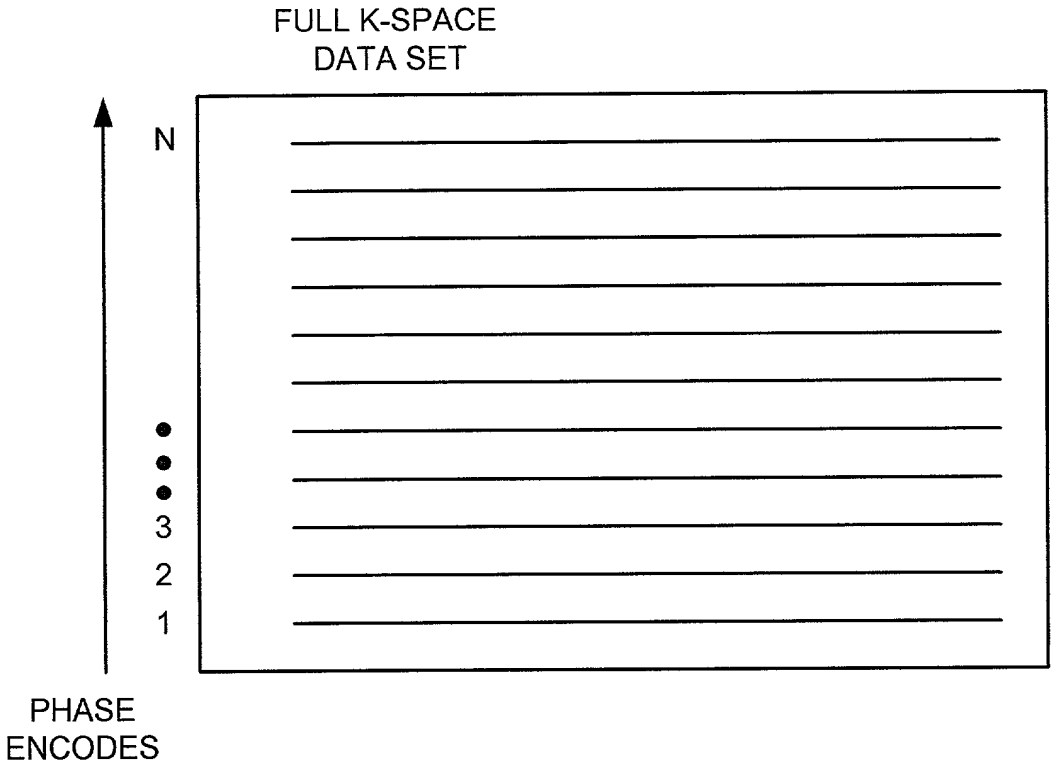
FIG. 1



NON-INTERLEAVED ORDER

FIG. 2A

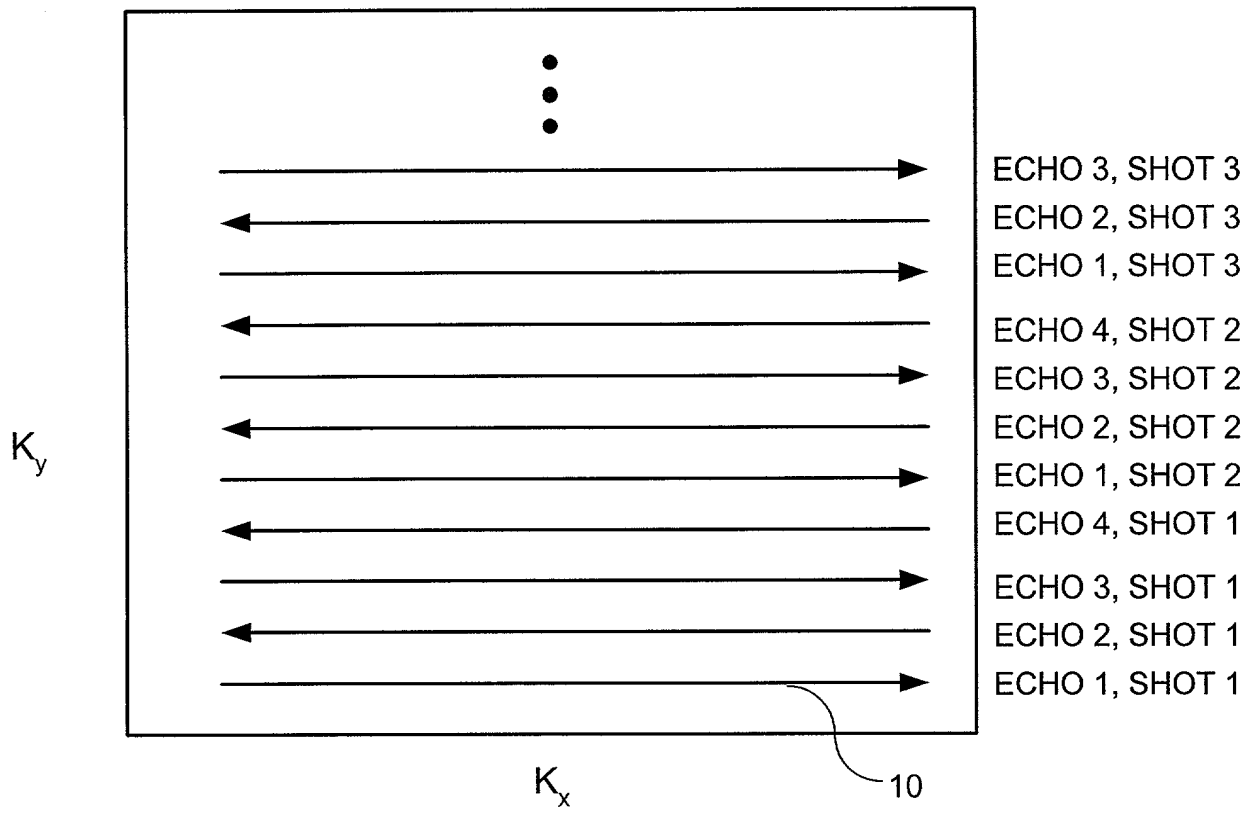



FIG. 2B

INTERLEAVED ORDER

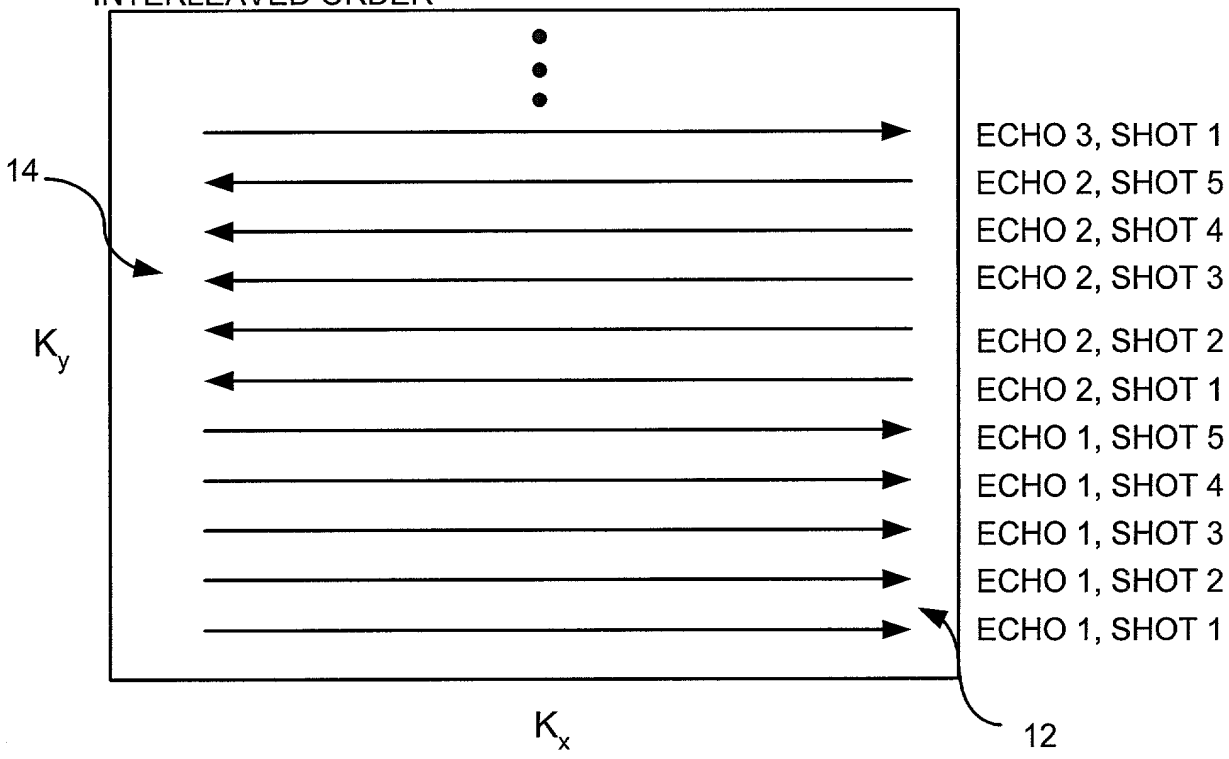


FIG. 3

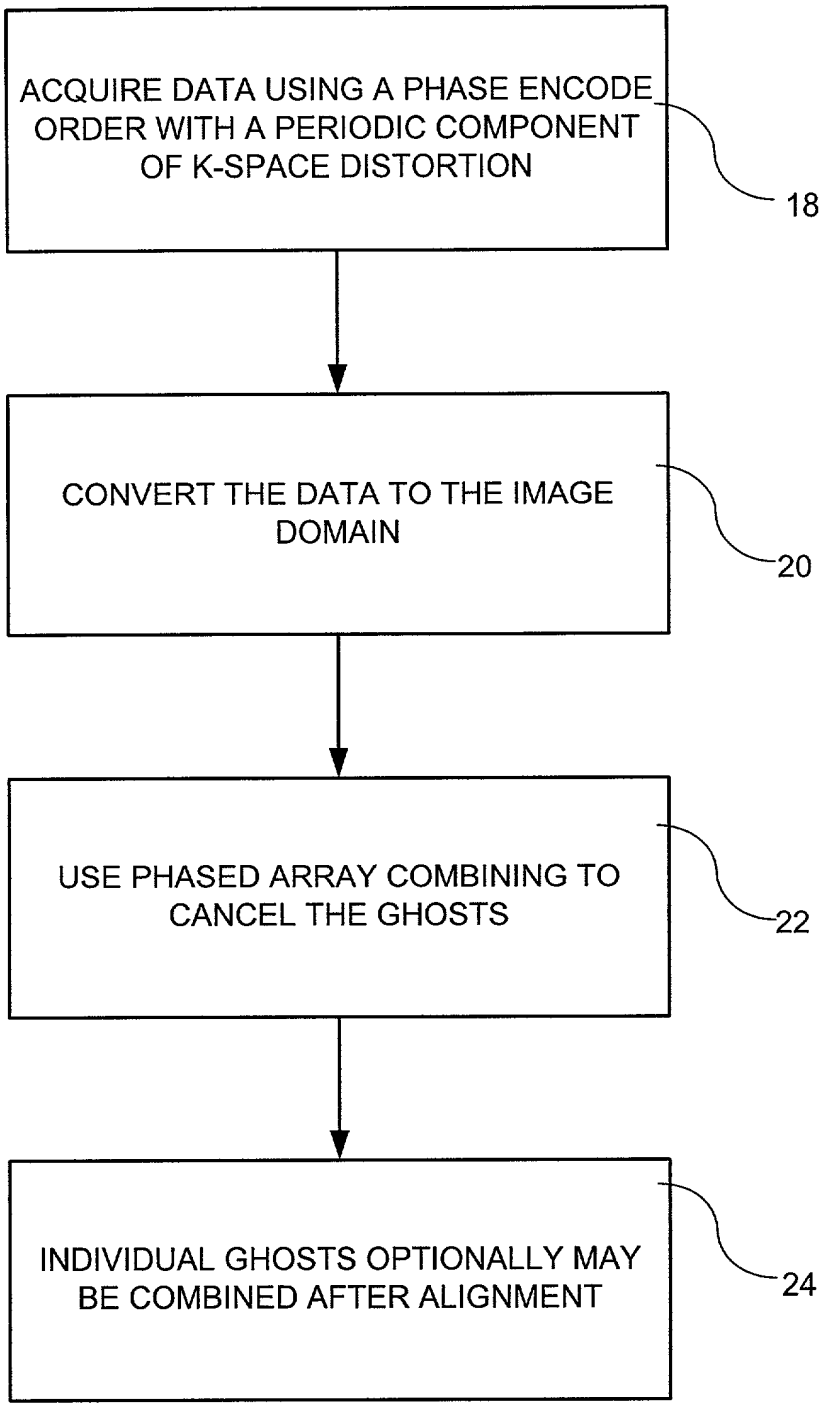

ACQUIRE DATA USING A PHASE ENCODE ORDER WITH A PERIODIC COMPONENT OF K-SPACE DISTORTION
18
CONVERT THE DATA TO THE IMAGE DOMAIN
20
USE PHASED ARRAY COMBINING TO CANCEL THE GHOSTS
22
INDIVIDUAL GHOSTS OPTIONALLY MAY BE COMBINED AFTER ALIGNMENT
24

FIG. 4

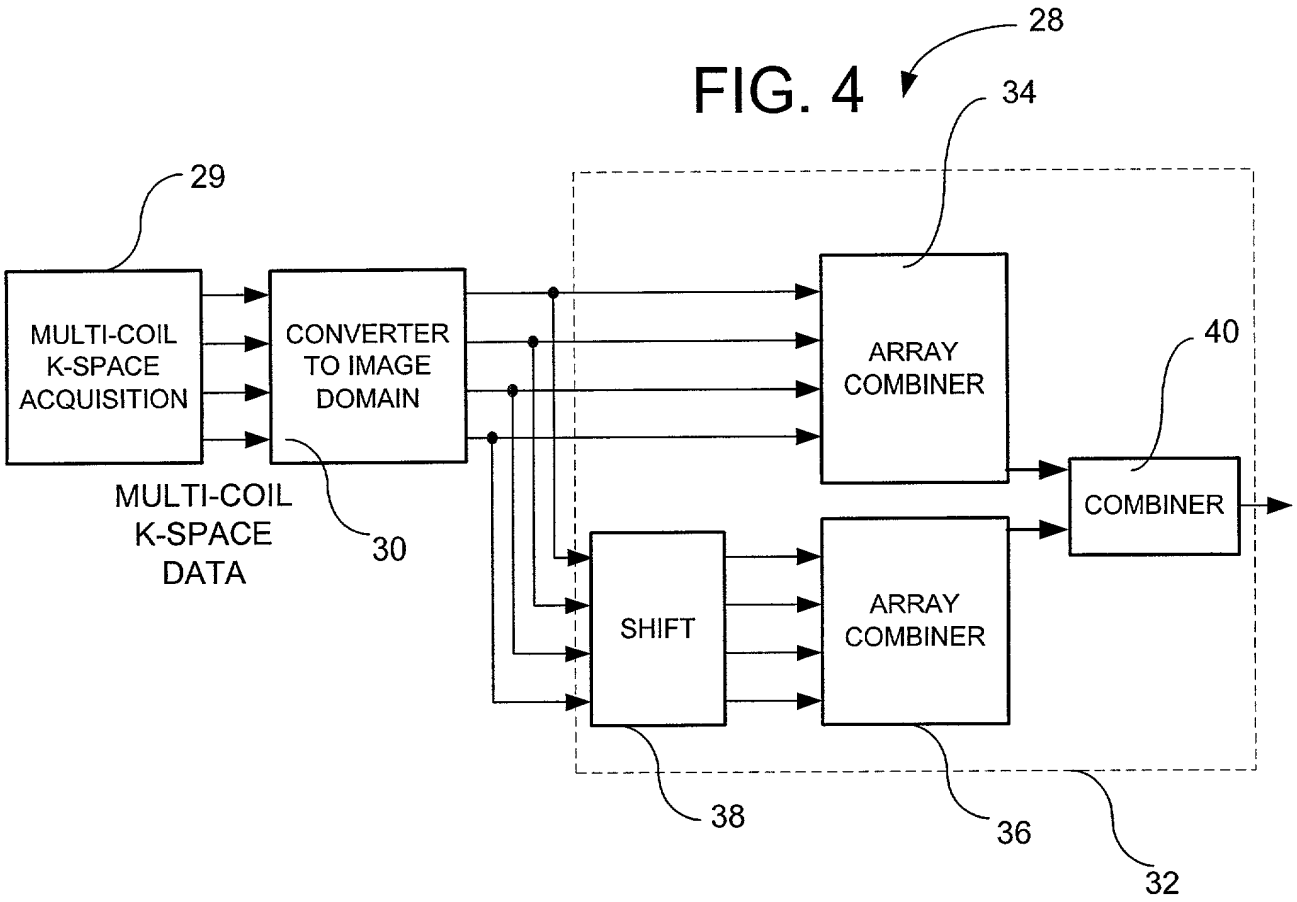

28
34
29
MULTI-COIL K-SPACE ACQUISITION
CONVERTER TO IMAGE DOMAIN
ARRAY COMBINER
40
COMBINER
MULTI-COIL K-SPACE DATA
30
SHIFT
ARRAY COMBINER
38
36
32

FIG. 5

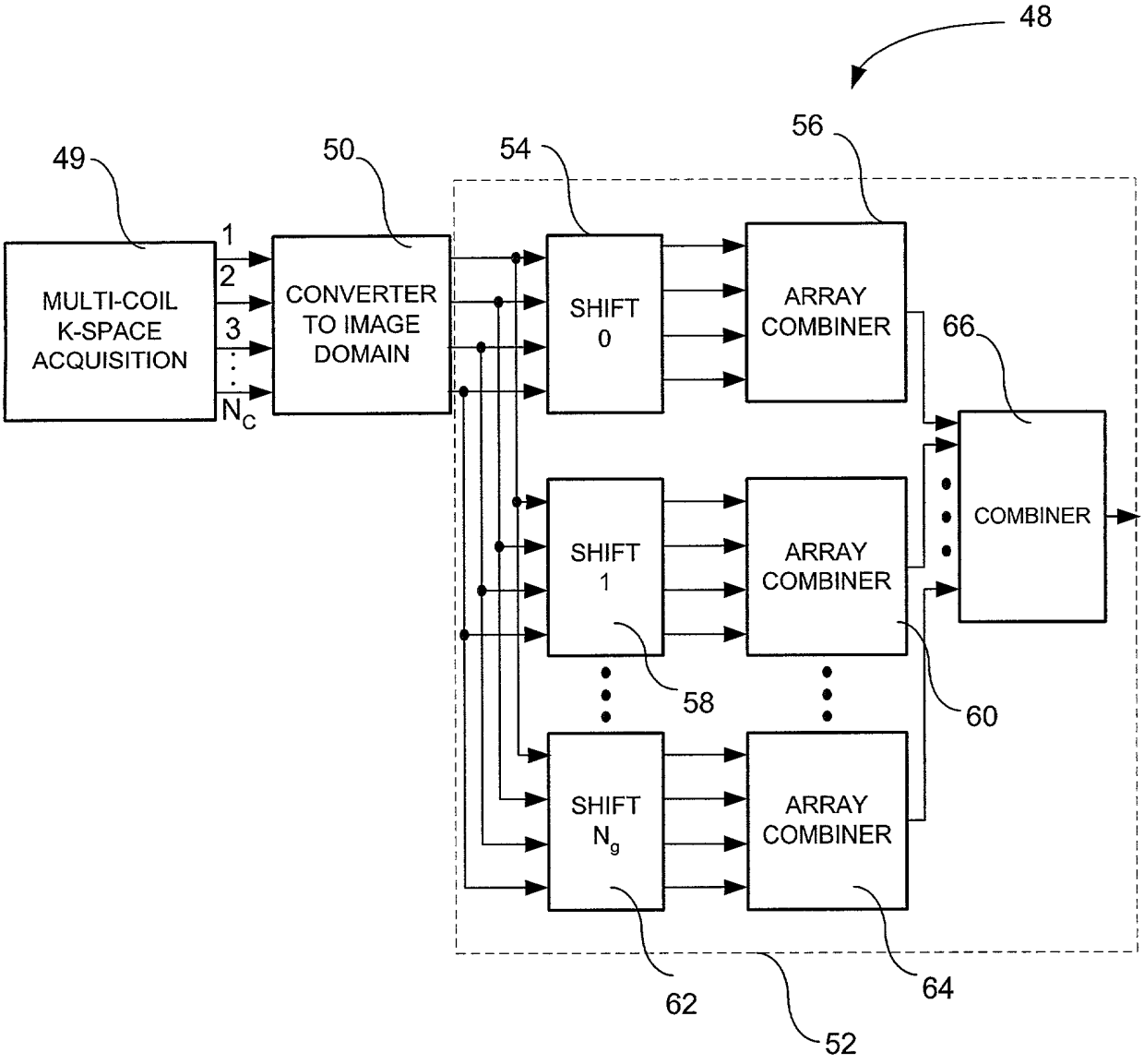

48
49
50
54
56
MULTI-COIL K-SPACE ACQUISITION
1
2
3
$N_C$
CONVERTER TO IMAGE DOMAIN
SHIFT 0
ARRAY COMBINER
66
COMBINER
SHIFT 1
ARRAY COMBINER
58
60
SHIFT $N_g$
ARRAY COMBINER
62
64
52

FIG. 6

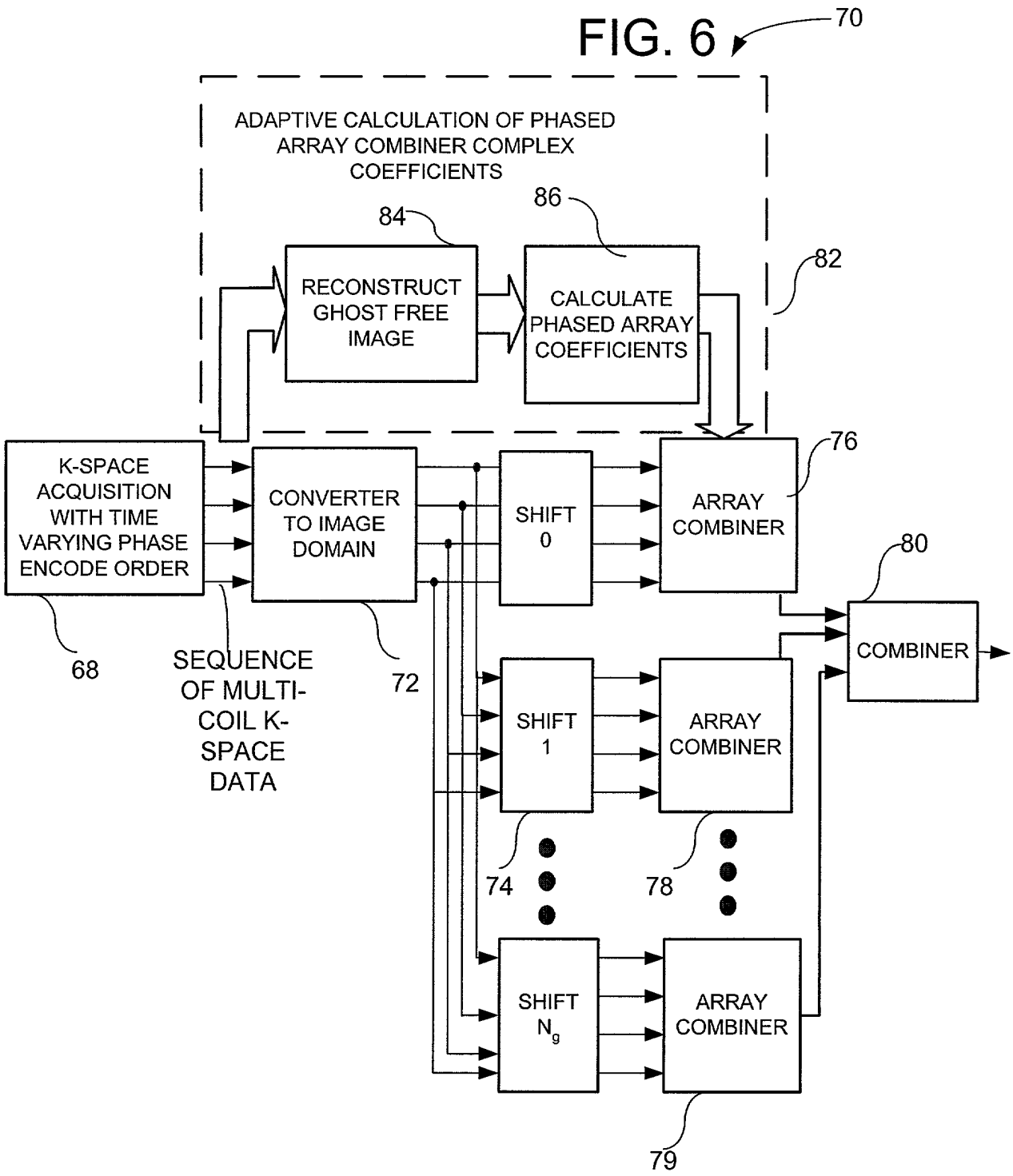

70
ADAPTIVE CALCULATION OF PHASED ARRAY COMBINER COMPLEX COEFFICIENTS
84
86
82
RECONSTRUCT GHOST FREE IMAGE
CALCULATE PHASED ARRAY COEFFICIENTS
K-SPACE ACQUISITION WITH TIME VARYING PHASE ENCODE ORDER
CONVERTER TO IMAGE DOMAIN
SHIFT 0
ARRAY COMBINER
76
80
COMBINER
SHIFT 1
ARRAY COMBINER
SHIFT $N_g$
ARRAY COMBINER
68
SEQUENCE OF MULTI-COIL K-SPACE DATA
72
74
78
79

FIG. 7

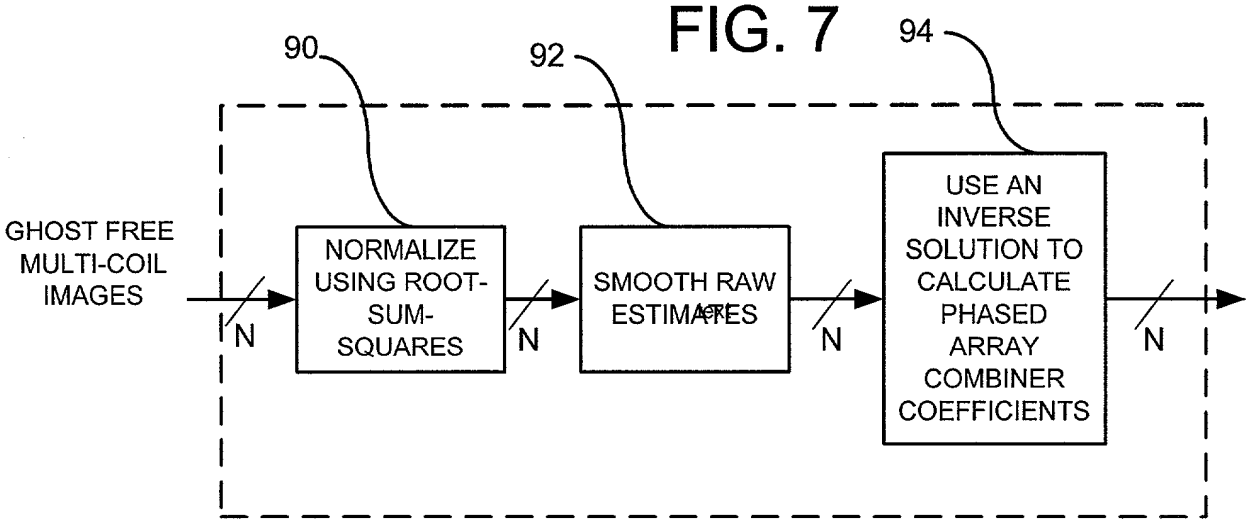

90
92
94
GHOST FREE MULTI-COIL IMAGES
N
NORMALIZE USING ROOT-SUM-SQUARES
N
SMOOTH RAW ESTIMATES
N
USE AN INVERSE SOLUTION TO CALCULATE PHASED ARRAY COMBINER COEFFICIENTS
N

FIG. 8

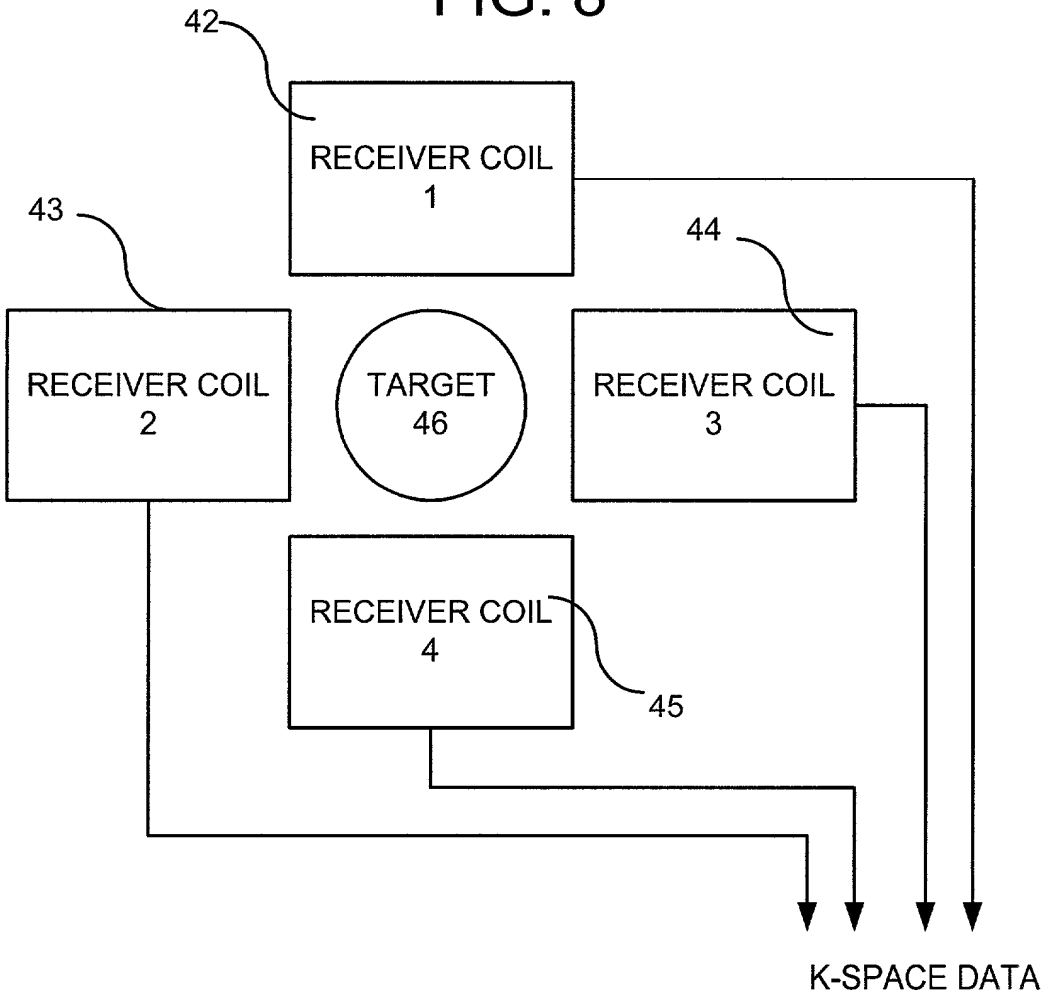

42
RECEIVER COIL 1
43
RECEIVER COIL 2
TARGET 46
44
RECEIVER COIL 3
RECEIVER COIL 4
45
K-SPACE DATA

FIG. 9A

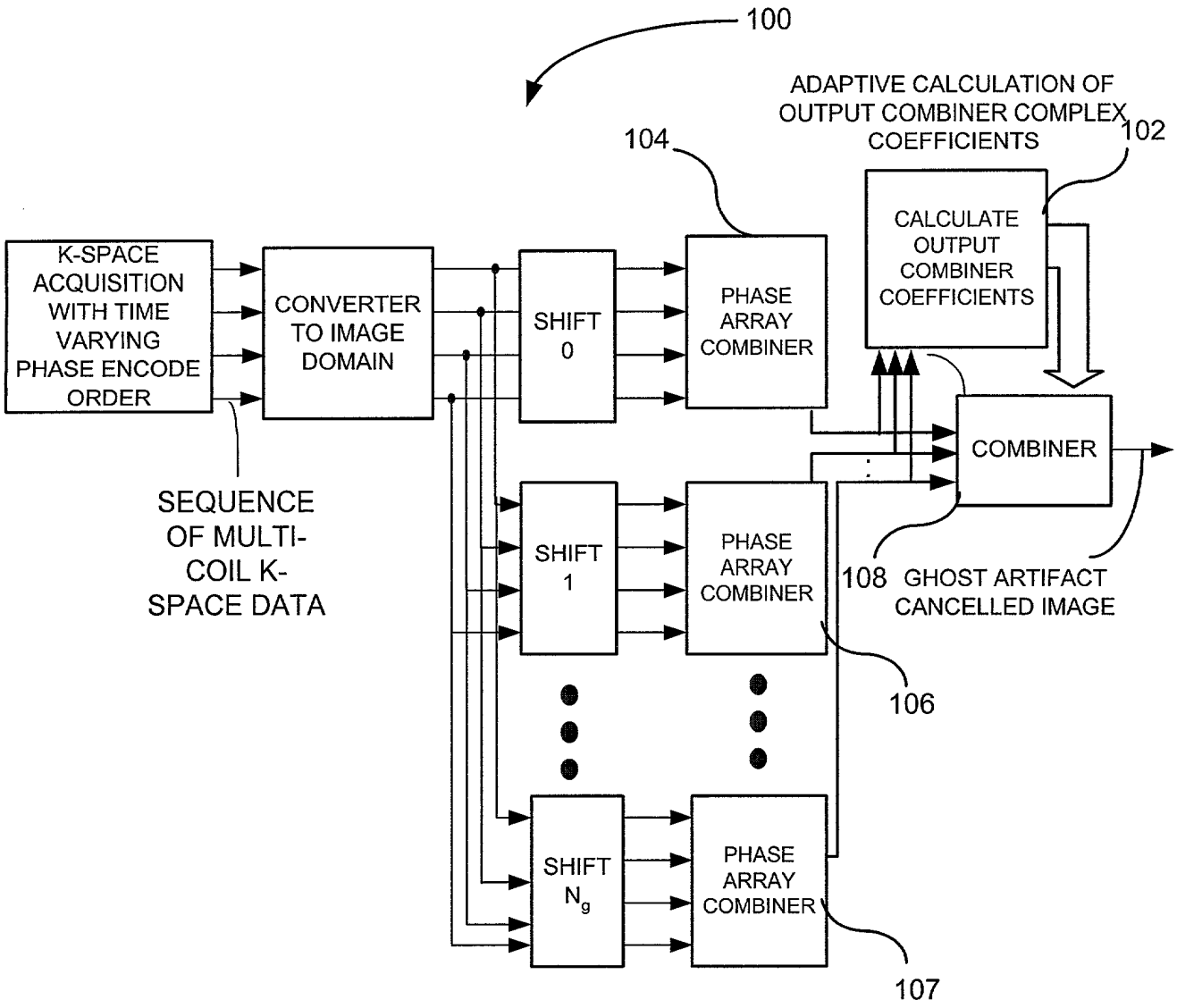
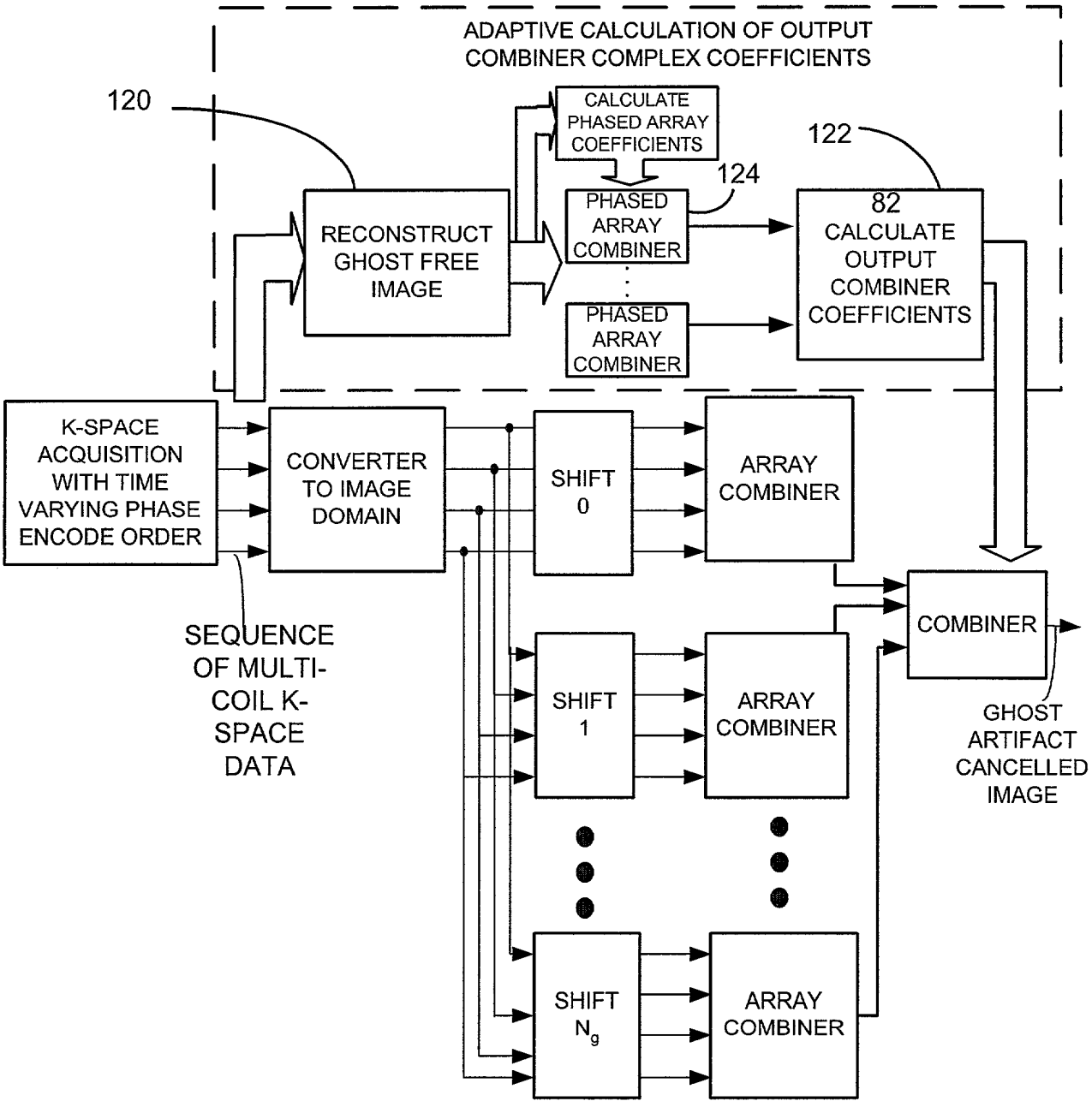

100
ADAPTIVE CALCULATION OF OUTPUT COMBINER COMPLEX COEFFICIENTS
104
102
CALCULATE OUTPUT COMBINER COEFFICIENTS
K-SPACE ACQUISITION WITH TIME VARYING PHASE ENCODE ORDER
CONVERTER TO IMAGE DOMAIN
SHIFT 0
PHASE ARRAY COMBINER
COMBINER
SEQUENCE OF MULTI-COIL K-SPACE DATA
SHIFT 1
PHASE ARRAY COMBINER
108
GHOST ARTIFACT CANCELLED IMAGE
106
SHIFT $N_g$
PHASE ARRAY COMBINER
107

FIG. 9B


ADAPTIVE CALCULATION OF OUTPUT COMBINER COMPLEX COEFFICIENTS
120
CALCULATE PHASED ARRAY COEFFICIENTS
122
124
RECONSTRUCT GHOST FREE IMAGE
PHASED ARRAY COMBINER
PHASED ARRAY COMBINER
82
CALCULATE OUTPUT COMBINER COEFFICIENTS
K-SPACE ACQUISITION WITH TIME VARYING PHASE ENCODE ORDER
CONVERTER TO IMAGE DOMAIN
SHIFT 0
ARRAY COMBINER
SHIFT 1
ARRAY COMBINER
SHIFT $N_g$
ARRAY COMBINER
COMBINER
SEQUENCE OF MULTI-COIL K-SPACE DATA
GHOST ARTIFACT CANCELLED IMAGE